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ABSTRACT

This action research project implemented and evaluated a program for improving classroom seating arrangements in order to increase on-task behavior among students in second and third grade. The problem of off-task behavior was documented by means of behavior checklists and anecdotal records. Analysis of probable cause data revealed that students' low on-task behavior was due to the type of seating arrangement, proximity of students' seats to the teacher, ability levels of the students, and type of lesson activity. A review of solution strategies resulted in the selection of three seating arrangement designs: clusters of three, U-shape, and rows. In conjunction with these three seating arrangements, student-teacher proximity and peer relationships were considered. Post-intervention data collected through various methods indicated that although each seating arrangement was effective during certain lessons, there was no arrangement that was effective for all lessons, suggesting that increased on-task behavior may be more easily achieved when the seating arrangement matches the goal of the lesson. (Three appendices contain program materials. Contains 17 references.) (EV)

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ED 422 129

INCREASING STUDENT ON-TASK BEHAVIOR THROUGH THE USE OF SPECIFIC SEATING ARRANGEMENTS

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An Action Research Project Submitted to the Graduate Faculty of the School of Education in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Teaching and Leadership

St. Xavier University & IRI/Skylight
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ABSTRACT

This report describes a program for improving classroom seating arrangements in order to increase on-task behavior among students. The targeted population consisted of primary students in a second and third grade regular education classroom. The second grade class is located in a western suburb of a large metropolitan area. The third grade class is located in a northeast suburb of a large metropolitan area. The problem of off-task behavior was documented through data revealing the number of students who demonstrated distraction during direct instruction and independent work time.

Analysis of probable cause data revealed that students' low on-task behavior is due to the type of seating arrangement, proximity of students' seats to the teacher, ability levels of the students, and type of lesson activity.

A review of solution strategies suggested by knowledgeable others, combined with an analysis of the problem setting resulted in the selection of three seating arrangement designs: clusters of three, U-shape, and rows. In conjunction with these three seating arrangements, student-teacher proximity, and peer relationships were considered.

Post intervention data indicated that although each seating arrangement was effective during certain lessons, there was no arrangement that was effective for all lessons. Therefore, increased on-task behavior is most easily achieved when the seating arrangement matches the goal of the lesson.

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CHAPTER 1

PROBLEM STATEMENT AND CONTEXT

General Statement of the Problem

The students of the targeted second and third grade classes exhibit off-task behavior that interferes with academic growth. Seating arrangements are examined to determine which one promotes the highest on-task behavior for the majority of students during direct instruction and independent activities. Evidence for the existence of the problem includes observation checklists used to record the amount of times students were found off-task combined with anecdotal records that document specific information pertaining to student behavior.

Site A

School A is one of the sites participating in this project.

Immediate Problem Context

The targeted group of students at School A are in second grade. School A has an enrollment of 360 students. As reported in the 1996 Illinois School Report Card, 88.6% of the students are White, 5.3% are Hispanic, 4.4% are Asian/Pacific Islander, and 1.1% are Black. Furthermore, 3.1% of the student population are from low-income families and 4.4% are Limited-English-Proficient--students who have been found to be eligible for bilingual education.

Students from preschool through fourth grade attend School A. The average number of students per kindergarten class is 19.7 while the average number of students per first grade and third grade class is 25.3 and 24.7 respectively. School A has a student mobility rate of 9.4%. Mobility is the percentage of the students who

enroll in or leave a school during the year. The faculty is composed of 16 full-time classroom teachers, four resource teachers, five instructional aides, and six full-time teachers for library, art, music, computers, Spanish, and physical education.

In School A's district, the staff is composed of 97.9% White and 2.1% Native American teachers. Of these, 81.4% are female and 18.6% are male. The average years of teaching experience in the district is 12.6 years with an average teacher salary of $42,397.

School A is approximately 35 years old. Music, art, library, and computers are each taught in special rooms. There is a gymnasium which also has collapsible tables that are used during lunch periods. As of 1992, six new classrooms have been added onto the building, along with a new library. Despite the recent addition, School A is still in need of more space. Due to a number of new homes being built in the area, School A is faced with steadily increasing class size and a lack of classrooms. The district is currently examining potential solutions to the rising enrollment including the possibility of passing a referendum in November, 1997. If the referendum passes, six new classrooms, a bathroom, storage space, and an additional gymnasium will be built.

The Surrounding Community

School A is in a western suburb of a large metropolitan area. The population of District A is socio-economically diverse. Many parents of the students have a college degree or above. The parents are extremely involved in their child's learning.

The two schools in the district serve approximately 700 students with an average expenditure per pupil of $8,674 compared to the state of Illinois which is $5,922. The district's elementary school reading program is primarily literature based with a combination of whole language and direct basal instruction. The use of manipulatives along with a textbook are used for mathematics instruction. The science

program is extremely hands-on and experiment based. Cooperative learning is used approximately 50% per week.

Site B

School B is the second site participating in this project.

Immediate Problem Context

The targeted group of students at School B are in third grade. School B has an enrollment of 589 students. As reported in the 1996 Illinois School Report Card, 96.9% of the students are White and 3.1% are Asian/Pacific Islander. Furthermore, only 0.2% of the student population are from low-income families and 0.9% are Limited-English-Proficient.

Students from kindergarten through fifth grade attend School B. The average class size is 24 students with one teacher. School B has a student mobility rate of 3.6%. The faculty is composed of 24 full-time classroom teachers, six resource teachers, and six teachers for art, music, and physical education. School B also has four full-time teaching assistants and three inclusion aides.

In School B's district, the staff is composed of 97.7% White, 1.2% Black, and 1.2% Asian/Pacific Islander teachers. Of these, 84.6% are female and 15.4% are male. The average years of teaching experience in the district is 15 years with 67.4% of the teachers having their Master's Degree or above. The average teacher salary is $49,808. The operating expenditure per pupil is $7,465 compared to the state of Illinois which is $5,922.

School B is 149 years old. As of 1996, approximately three classrooms have been added onto the building, along with a new library, computer lab, and office/entrance. Music, art, and library are taught in special rooms which have all been increased in size, storage, and equipment. There is a gymnasium which also contains a stage and collapsible tables that are used during lunch periods. Even though there

has been recent construction, School B is still in need of more space. Due to a new subdivision, School B is faced with steadily increasing class sizes. The district is forced into making a solution to keep class size low. The three options are: add on more classrooms to the already large building, move all the kindergartens in the district to the vacant school, or to rezone.

The Surrounding Community

School B is located in a suburb on the northeast side of a large metropolitan area. It is a predominately wealthy, White community. Many parents of the students have a college degree or above. The median family income is approximately $113, 200 with two percent of the population below poverty level. There are approximately 17,600 people in the surrounding community of School B. Of these, 97 % are White. The parents are extremely involved in their child's learning. Daily, teachers in District B will see parents throughout their building working with children, the faculty, and the principal.

There are four elementary schools and two junior high schools in the district. The total enrollment is 2,582 students. The district's elementary school reading program is primarily literature based with a combination of whole language and direct basal instruction. The University of Chicago Everyday Mathematics Program is used in District B. The use of manipulatives, games, and connections to the real world are used for instruction. The science program is extremely hands-on and experiment based. Cooperative learning is utilized approximately 50% of the time per week.

National Context of the Problem

With classroom procedures having become more flexible in recent years, there has been an increase in curiosity among educators, and those affiliated with the educational field, as to how elementary classroom seating arrangements are related to the on-task behavior of students. Several studies have been implemented. In some of

these studies researchers have found a relationship between on-task behavior and seating arrangements. However, the results of the research have been two-fold. For example, a 1995 study by Hastings and Schwieso concluded that on-task behavior was significantly higher when student desks were arranged in rows. On the other hand, Wengel (1992) found that while there was a relationship between on-task behavior and seating no one arrangement proved to be significant. In fact, incorporating a variety of arrangements was more effective. Wengel (1992) found that on-task behavior was more significant when the seating matched the lesson type and/or teaching style.

In addition to the relationship between on-task behavior and seating arrangements, it is apparent that educators are mainly concerned with three commonly used designs. Arrangements that tend to be the most scrutinized are rows, clusters, and a U-shape design (Wengel, 1992). These arrangements are used mainly when studying on-task behavior. However, further studies have used other designs to find their significance to learning styles. According to Papalia (1994) there are specific seating arrangements that correspond to different learning styles among elementary students.

Clearly, the educational field views seating arrangements as a major component of classroom management. In fact, Baron (1992) created guidelines intended primarily for student teachers and beginning teachers. Baron (1992) noted that seating arrangements are a priority when establishing a classroom environment for high on-task behavior.

CHAPTER 2

PROBLEM DOCUMENTATION

Problem Evidence

In order to document the amount of student off-task behaviors, behavior checklists and anecdotal records were used.

Behavior Checklists

One form of gathering data was through the use of behavior checklists (Appendix A). The items on the checklist consisted of not beginning a task promptly, not following directions, inappropriate talking, and fidgeting with materials. Each observation ranged from five to fifteen minutes in length. During this time period the entire class was observed.

Of the 23 students at School A and the 24 students at School B, all were involved in the behavior checklist process over a three-week period. A summary of the targeted behaviors for each school is found in Table 1.

Through examination of the data, it can be noted that the behaviors of not beginning a task promptly and not following oral directions differed in the percent of times each was observed at the two sites. However, the percentages of inappropriate talking and fidgeting with materials show a similarity between the two sites. These two behaviors were also the most frequently observed behaviors at each site. Further examination of the data provides clear evidence of the problem. With such high instances of inappropriate talking and fidgeting with materials, the students' academic growth is being affected. Analysis of the anecdotal records also provided evidence for

the existence of the problem.

Table 1

Categories and Number of Off-task Behaviors September, 1997

Behavior	Site A Observations	%	Site B Observations	%
Not beginning task promptly	30	18	36	23
Not following oral directions	36	22	28	18
Inappropriate talking	60	36	56	35
Fidgeting with materials	40	24	40	25

Anecdotal Records

A second form of data collection that utilized by the researchers was anecdotal records. Alongside the observation checklist, each teacher made notations that explained the behavior with further details as well as possible reasons for the occurrence of the off-task behavior. A summary of the anecdotal records can be found in Table 2.

Of the observed behaviors in both classrooms, inappropriate talking was most frequently observed. Not beginning the task promptly was noted the least amount of times at School A while not following oral directions was noted the least amount of times at School B.

After examining the anecdotal records, it was noted that many of the off-task behaviors, especially inappropriate talking, occurred when the students returned from lunch and when the students arrived in the classroom in the morning. Further examination showed that there was an even distribution of off-task behaviors among the girls and boys in each class. Also, there did not seem to be any correlation

between ability levels and off-task behavior.

Table 2

Examples of Off-task Behaviors September, 1997

Behavior	Site A Observations	%	Site B Observations	%
Not beginning task promptly	30	18	36	23
Sharpening pencils	9	.05	10	.06
Looking through folders	10	.06	15	.09
Asking to go to the bathroom	6	.04	5	.03
Walking to garbage can	2	.01	2	.01
Walking to get a tissue	3	.02	4	.02
Not following oral directions	36	22	28	18
Asking where to put papers	8	.05	6	.04
Not taking out assignment book	14	.08	10	.06
Doing assignment incorrectly	14	.08	12	.08
Inappropriate talking	60	36	56	35
Turning around in seat	52	31	50	31
Walking to another area of room	8	.05	6	.04
Fidgeting with materials	40	24	40	25
Tapping pencils	9	.05	10	.06
Rolling pencils on desk	6	.04	6	.04
Spinning ruler on pencil	4	.02	5	.03
Scraping pencil on desk	4	.02	3	.02
Flipping through textbook	9	.05	10	.06
Doodling	8	.05	6	.04

The teachers' anecdotal records also explained the behavior with further details as well as possible reasons for the occurrence of the behavior. One noted example of not beginning a task promptly was when a student was out of her seat at the time that the independent activity had begun because she was getting a folder out of her backpack. A second observed behavior is an example of not following oral directions. A student's question, "Where do I put this?" was asked after the directions had been given. Also, inappropriate talking was noted as occurring most commonly when students turned around to talk to people behind them. Literature suggests various causes that might be attributed to such behaviors.

Probable Causes

The literature suggests several underlying causes for off-task behavior in the school setting. Some of the possible underlying causes may be the proximity of students' seats to the teacher, the ability levels of the students, and the type of seating arrangement the students are in.

Proximity To Teacher

According to Schwebel and Cherlin (1972), researchers have observed that children seated in the front row of elementary school classrooms often appeared more attentive and less disruptive than their peers in the back. In addition, it had been noted that students in the front were engaged in a larger percentage of individual work as well as a smaller percentage of inactivity than the others in the back. The teacher in this instance was found to be located in the front of the room. Another impact on student off-task behavior is the availability of space between desks for the teacher to have personal contact with each student (Jackson & Lahadern, 1966). The ability of teachers to relate to each individual creates an effective classroom climate resulting in more on-task behavior. Seventy percent of classroom interaction exists between the teacher and the immediately available students (i.e., those in the front of the room)

(Good & Brophy, 1977). Good and Brophy (1977) also suggest that when teachers and students are in close proximity students are more likely to receive verbal and non-verbal cues, which increases positive classroom behaviors. However, another possible cause for off-task behavior in the classroom is the ability level of students.

Ability Levels

According to a study by Rosenfield, Lambert, and Black (1985), the behavior of low-achieving boys differ from that of other student types. Low-achieving boys more frequently engaged in disruptive, off-task behavior than the other students, including low-achieving girls. Also, low achievers demonstrated more withdrawal, and engaged in listening and on-task behavior less frequently. While it appears that ability can effect the student off-task behavior, further reading indicates that high-achievers may act in similar ways. Rosenfield, Lambert and Black (1985) also state that results demonstrated that it was the student desk arrangement that had significant results on the student on-task behavior not just the ability level of the child. This leads to the last possible cause for student off-task behavior--seating arrangements.

Seating Arrangements

In a study by Wheldall, Morris and Vaughan (1981), it was found that on-task behavior was significantly lower when children sat around tables than when the students were in rows. When students were placed back in tables a second time their on-task behavior decreased again. Axelrod, Hall, and Tams (1979) agree that tables increase student off-task behavior. They found that table formations tend to be associated with more off-task behavior for both boys and girls compared to that of rows (Axelrod, Hall & Tams, 1979). This is so, because table formations facilitate eye-contact between pairs which can rapidly lead to conversations involving the whole table. In addition, discreet tapping or kicking to get another's attention, is easily achieved.

According to Rosenfield, Lambert, and Black (1985), the circle or U-shape seating configuration also produces a greater amount of social interaction, but was found particularly useful in a lesson design where the goal was to promote a discussion. In that instance, students engaged in more on-task, out-of-order comments than that of rows (Rosenfield, Lambert, & Black, 1985). Similarly, if the teacher's goal is to test, introduce new material, and/or engage students in individual work, rows would result in more on-task behavior (Papalia, 1994). When the arrangement does not match a lesson objective more off-task behavior results. Therefore, the seating arrangement in conjunction with the lesson activity and lesson objective are intertwined (Papalia, 1994).

Although there are three overall probable causes for students' off-task behavior, proximity of the student to the teacher, ability level of the student, and seating arrangements, the most predominate one in School A and B appears to be the seating arrangement. Through the examination of the classroom observation checklist for both School A and School B, both have students arranged in rows of pairs with no changes in the seating arrangement to meet the needs of the lesson activity and objective. In addition, both schools have comparable class size as well as the number of varying ability levels. There seems to be no additional underlying cause that pertains solely to the individual classroom. However, there are a number of solutions that address the various causes and can lead to a reduction of off-task behavior.

CHAPTER 3

THE SOLUTION STRATEGY

Literature Review

A review of current literature indicates that classroom seating arrangements have an affect on student behavior. Through the manipulation of seating arrangements, control over children's on-task behavior is clearly possible, especially with children whose initial on-task behavior is low (Wheldall, Morris, Vaughan, & Ng, 1981). In addition, if a student understands why he/she was assigned to a particular seat, and if the seat's location facilitates attention to tasks, then seating arrangements seem to have an even greater effect on behavior (Schwebel & Cherlin, 1972).

Literature also states that the seating arrangement often does not match the nature of the students' tasks. For example, in many primary schools, where children are often seated in groups, their assignments are generally individual (Hastings & Schwieso, 1995). Teachers consistently report that inappropriate talking is the most frequent type of classroom disruption (Wheldall & Merrett, 1988). Yet Hastings and Schwieso (1995) believe, that to seat students in a group, which naturally suggests a social context, give them individual work, and then tell students to stop talking, seem to be inconsistent actions. With this in mind, the literature suggests that the types of tasks involved must be considered when deciding which seating arrangement should be utilized. In order to increase student on-task behavior in an elementary classroom three seating arrangements are examined.

U-Shape Arrangement

The first seating arrangement is the U-shape design. In the U-shape configuration, students tend to engage in a higher level of interactive verbal behaviors according to Wengel (1992). But, this arrangement also enabled teachers to use the behaviors in ways that made their lesson presentation more active and collaborative. The U-shape facilitates interaction between the teacher and the students, and among the students themselves. The results suggest that this seating arrangement influences participation, thinking, and appropriate comments, which in turn have a positive effect on learning (Wengel, 1992). According to Papalia (1994), the U-shape design is found to facilitate the following: teacher mobility, eye contact, pupil attention, communication, game playing, and teacher control.

Furthermore, teachers who wish to facilitate pupil interaction during discussion sessions would be wise to consider the U-shape design (Rosenfield, Lambert, & Black, 1985). However, if a teacher is more concerned in having a discussion in a smaller setting with a variety of viewpoints he/she would be wise to consider a cluster arrangement.

Cluster Arrangement

The second seating arrangement examined is the cluster in which students are seated in small groups of three or more. This arrangement according to Papalia (1994), facilitates the following: remedial activities, tutoring, use of media, reinforcement of learned material, use of self-instructional materials, peer teaching, skit planning, games, self-pacing, teacher awareness of individual learning problems, and grouping according to interests or needs.

Similar to the U-shape design, the cluster facilitates social interaction. However, both produce a greater number of on-task out-of-order comments, on-task oral responses, and other on-task behaviors (Rosenfield, Lambert, & Black, 1985). As

far as hand-raising, there is found to be more hand-raising in clusters than the U-shape. Pupils seated in clusters, who are actively involved in class discussion, raise their hand to get attention, whereas those in the U-shape simply make more on-task out-of-order comments (Rosenfield, Lambert, & Black, 1985).

The cluster seating arrangement tends to produce more on-task interaction during a discussion-based format. Zifferblatt (1972) found that large cluster arrangements facilitate social interaction but impede individual work. Consequently, row arrangements tend to inhibit social interaction and increase independent work.

Row Arrangement

However, when trying to facilitate individual on-task behavior as Wheldall and Lam (1987) did in a special school for behaviorally troubled children, they encouraged the use of rows to produce desired pupil and teacher behavior. They found that on-task behavior doubled when seats were changed from clusters to a row formation and the teacher's positive comments also rose dramatically (Wheldall & Lam,1987). In a situation where the teacher wishes to involve students interactively, desks arranged in rows produces a greater number of withdrawal responses and off-task responses (Wheldall & Lam, 1987). Children at desks in rows are least likely to interact with lesson material (Rosenfield, Lambert, & Black, 1985).

According to Papalia (1994), the row configuration facilitates the following: the introduction of new material, the use of audio-visual aids, testing, activities where everyone is doing the same thing, independent work, and choral work.

More often studies found that rows produce more on-task behavior for individual work. Bennet and Blundell (1983) found that the quantity of completed work increased during the use of a row arrangement. Finally, in a study, it was discovered that the amount of students' on-task behavior rose between 10-29% when seats were changed from groups to rows (Wheldall & Lam, 1987). This does not, however,

prescribe rows as the solution for all times, but only that it is the most conducive to independent work.

Recent literature provides information from several studies that were conducted in the past 25 years. These studies focus on individual types of seating arrangements and their effect on on-task behavior.

A Study

One study conducted by Rosenfield, Lambert, and Black (1985) focused on three seating arrangements--rows, clusters, and a circle design. The subjects enrolled in the study were two fifth-, two fifth/sixth-, and two sixth-grade regular classrooms. One classroom at each grade level was selected for the experimental classrooms in which desk arrangements were varied. The remaining three classrooms were the control groups.

In each of the six classrooms, eight students were selected to be observed: two high and two low ability students, and two high and two low interactors. The students were observed while brainstorming ideas for writing assignments. They were observed during three 20 minute lessons per seating arrangement.

The results indicated differences per each arrangement for on-task oral responses, on-task out-of-order comments, and on-task behaviors. Circles produced a greater number of all three categories than did rows. The cluster arrangement produced a greater number of on-task behaviors and more hand-raising than did rows. The row arrangement caused students to interact less frequently than the clusters and more off-task responses were noted compared to that of the circles.

In general, the findings stated that teachers who wish to facilitate student interaction during discussion sessions would be wise to consider arranging desks in circles. The results indicated that more active participation of students is encouraged by a circle arrangement rather than rows.

However, another component to be examined in order to increase on-task behavior through seating arrangements is the idea that the effectiveness of any arrangement is dependent on the activity at hand. Ross (1982) states that, "Just as there is no one best teaching method that can be used in all teaching situations, there is no one best seating arrangement" (p. 13). Ross (1982) explains how the best seating arrangement depends on the activity being implemented and the amount of student interaction and movement that the teacher desires. Ross (1982) contends that teachers must rearrange their classrooms often in order to meet the needs of the students and the activity. While Ross (1992) suggests that teachers should rearrange seats as often as necessary to coincide with various teaching strategies, Cuban (1984) and Mayher and Brause (1986) have noticed the lack of change in classrooms during the last century.

History

In the early 1900's, desks were situated in rows and bolted to the floor facing the chalkboard and the teacher's desk. This arrangement was used to allow teachers to easily supervise large classes and to assist students in working uniformly on assigned tasks (Wengel, 1992). However, Wengel (1992) also noted that even when stationary classroom furniture was replaced with movable desks and chairs, many teachers still did little to alter their seating arrangements. This lack of change in room arrangements could be related to a belief that rows reinforce a teacher's authority or that teachers tend to use practices they are familiar with from their own experience as a student (Wengel, 1992). In fact, when teachers were questioned about the seating arrangements they remember from their own schooling, even those who had been teaching for many years, could specifically remember the way their seats were organized. In general, most teachers remembered rows being used when they were students (Cuban, 1984; Mayher & Brause, 1986). Since rows were commonly used

when teachers were students, this may be a reason why many teachers still continue to use rows in their own classrooms.

Seating arrangements have a definite impact on the behavior of children in learning activities. In striving for school effectiveness, teachers must heed the advice of reformers in varying their teaching methods, which include rearranging seats as an activity deems necessary (Wengel, 1992).

Project Objectives and Processes

As a result of multiple seating arrangements (rows, triplets, U-shape) during the period of October 13, 1997 to December 12, 1997 the second and third grade students will increase on-task behavior during direct instruction and independent activities, as measured by observation checklists and anecdotal records.

In order to accomplish the terminal objective, the following processes are necessary:

1. The teacher will randomly move student desks in three week intervals.
2. The student desks will be moved into three distinct designs-row, triplets, and U-shape.
3. A survey will be administered to other primary teachers to find out what seating arrangements are most commonly preferred.
4. A reflection log will be kept by the teacher of each classroom to document any observations related to student behavior per seating arrangement.
5. The teacher will note, through observation checklists and anecdotal records, students' off-task behavior during set periods of time.

Project Action Plan

The following steps were taken to complete the research project:

September, 1997: Students' desks were arranged in pairs. No observations of student behavior took place.

September 15, 1997: Teacher surveys were distributed.

September 18, 1997: A reminder was sent to teachers pertaining to the due date of the survey.

September 22, 1997: Teacher surveys were due, and student surveys were distributed and completed.

September 23, 1997: Researchers talked to teachers who did not return survey and asked if they could complete it.

October 6, 1997: Student desks were moved to a U-shape.

October 7, 1997: Observation checklist began for the U-shape (15 minute observations in both the morning and afternoon).

October 17, 1997: Last day of U-shape observations

October 27, 1997: Student desks were moved to triplets.

October 28, 1997: Observation checklist began for the triplets.

November 7, 1997: Last day of triplets observation

November 17, 1997: Student desks were moved to rows.

November 18, 1997: Observation checklist began for the rows.

December 2, 1997: Last day of rows observation

Week of December 8, 1997: Observation results were reviewed for each classroom. Findings were preliminarily organized.

December 22, 1997: First draft of research report began.

Methods of Assessment

In order to accurately assess the outcomes of the research, various methods were implemented by the teachers throughout their research. For example, teacher surveys were distributed in each school district. Surveys were sent through the district mail and were used to determine which seating arrangements other teachers prefer. Also, surveys were completed by students in each classroom to gain a better

understanding of the seating arrangement they preferred. A third method of assessment was conducted by the third grade teacher. She set up a video camera in the back of the classroom to further document on-task behavior. In addition, the researchers took photographs of students while they worked in various seating arrangements. Finally, observation checklists and anecdotal records were used daily by the teachers. The information gained from the checklists and anecdotal records were used to compare the number of off-task behaviors for each seating arrangement.

CHAPTER 4

PROJECT RESULTS

Historical Description of the Intervention

The objective of this project was to increase student on-task behavior during independent and direct instruction from October 6, 1997 through December 2, 1997. To meet this objective, student desks were moved into a U-shape design, clusters, and rows for three-week intervals. These three arrangements were chosen based on a review of related research documents as well as teacher surveys (Appendix B), and a variety of activities were observed in order to ensure proper documentation of student behavior

Activities

At Site A, morning activities included math, Daily Oral Language, reading, and writing while afternoon activities included social studies and science. During math, direct instruction and practice of new concepts occurred. In Daily Oral Language, students completed individual editing practice of written work while reading activities included direct instruction of vocabulary and comprehension strategies. Writing, social studies, and science each involved direct instruction and application of new concepts. At Site B, morning activities included math, Daily Oral Language, and writing while afternoon activities included reading and writing. At both sites, students were not involved in group work during any of the observation time periods. Throughout the observation, the students were familiar with the procedures that took place during

each of the activities. The activities were observed in the following arrangements.

U-shape

At Site A, this arrangement consisted of five desks on each side of the room, seven desks along the back, and two rows of three desks each in the center of the U-shape. The two side rows each faced inward while the back row and rows of three all faced the front of the room (Appendix C).

At Site B, this design consisted of seven desks on each side, six desks along the back, and a small row of four in the center. Students on the sides faced inward while the four in the center and back faced the front of the room. After the U-shape arrangement, students' desks were arranged into clusters.

Clusters

This arrangement consisted of small groups of three students. The desks at both Site A and Site B were set up with two students seated side by side with the third desk facing the pair. Proceeding the clusters arrangement was the rows configuration.

Rows

This arrangement consisted of desks facing the front of the room. The desks were set directly behind each other. At both Sites A and B, the desks were placed in four rows of five desks. The fifth row contained three or four desks respectively.

Data Collection

Data was collected during each three-week interval. In order to maintain accurate data, a behavior checklist was utilized by the teacher to document various off-task behaviors. The behaviors included inappropriate talking, fidgeting with materials, not following oral directions, and not beginning a task promptly. Also, anecdotal records were kept to provide more information about student behavior.

The documentation occurred twice daily by each teacher during morning and afternoon independent activities and direct instruction. The topics of study and

activities varied while observation times remained consistent.

Presentation and Analysis of Results

In order to assess the effects of various seating arrangements on student on-task behavior during independent activities and direct instruction, a behavior checklist was used throughout the intervention (Table 4).

Table 4

Categories and Number of Off-task Behaviors By Site October 7-December 3, 1997

	U-shape		Clusters		Rows	
Behavior	A	B	A	B	A	B
Inappropriate talking	32	38	50	70	21	27
Fidgeting with materials	10	15	41	56	15	21
Not following oral directions	7	10	9	11	6	9
Not beginning task promptly	10	12	15	14	7	6

Through examination of the data and anecdotal records for Sites A and B, it can be noted that inappropriate talking, not following directions, and not beginning a task promptly occurred the least amount of times in the row arrangement while fidgeting with materials occurred the least amount of times in the U-shape arrangement. On the other hand, all of the observed behaviors occurred the most often in the cluster arrangement.

Upon further examination of the anecdotal records, it was noted that the row arrangement caused many spatial problems such as having little room available for students to gather on the floor, and students were unable to leave the appropriate amount of space in front of and behind their desks. In addition, the teachers found it

difficult to position classroom equipment such as the overhead projector. Also, informal partner activities in which students were asked to discuss a topic with the person next to them often resulted in disruption of the flow of the lesson because students were unsure of who should be their partner. Finally, the students in the back of the room had difficulty hearing the students in the front of the room.

In considering the data collected during the U-shape arrangement, the off-task behaviors occurred somewhat more frequently. However, the students were able to easily hear each other during discussions and presentations, and they found adequate space to work during cooperative learning activities.

Finally, the teachers noted that in the clusters arrangement, students were able to easily share materials and manipulatives for lessons. Clusters also allowed for student movement and the positioning of the overhead projector. This information provided various conclusions and recommendations.

Conclusions and Recommendations

The ideal seating arrangement is not easily defined because one arrangement cannot meet the goals of every lesson. For example, despite some of the negative aspects of the row arrangement, teachers found it easy to monitor and assist students during individual work time. Also, dismissal of students was easy to organize because one row at a time could be dismissed. Finally, the row arrangement did not facilitate class discussions because the students at the back of the room had difficulty hearing the students at the front of the room.

From the data analysis, it is recommended that the row arrangement be used for test-taking and independent activities in which the teacher needs to assess student learning on an individual basis. In these types of situations, the teacher can easily monitor students' work, and students are provided with a more conducive situation for concentrating on individual work.

On the other hand, the configuration of the U-shape allowed for the ease of a class discussion, student presentations, and role-playing activities. This arrangement also facilitated cooperative learning activities because students could find adequate space to work. Nevertheless, informal paired activities were not easy to facilitate because students were unsure of who their partner would be. In addition, the U-shape did not lend itself to an organized dismissal of students.

Finally, there were many positive aspects of the cluster arrangement. For example, group work was promoted because groups were already formed. Also, students were able to easily assist one another when a question arose during work time. This design is not recommended for test taking and learning new concepts due to the distractibility factor among students.

From this information, it is apparent that each arrangement had its own positive and negative aspects. Teachers may find the variety of arrangements useful in promoting the lesson goal.

Strengths and Weaknesses of the Study

Upon reflection of the intervention, the researchers noted that there were a few strengths and weaknesses. A weakness that was noted was time keeping. Keeping the observations within the specified time of fifteen minute intervals was difficult to do while teaching. This weakness could be alleviated through the use of an outside observer.

The strengths included having general categories on the behavior checklist which resulted in quick and easy feedback. Also, the chosen seating arrangements reflected the majority of the teachers' seating preferences within each school as noted from the teacher survey. Upon reflection of the study as a whole, conclusions can be drawn.

Conclusion

In conclusion, it is recommended that teachers consider the goal of the lesson and match the seating arrangement accordingly. Teachers should move away from the notion of a fixed seating arrangement and remember to adjust their seats according to a specific activity. For example, if a cooperative group lesson is being taught, students should be arranged in clusters to best facilitate their learning. On the other hand, rows would be best used during a test or when students are working individually, while a U-shape arrangement can be used during a class discussion or debate.

In order to select the appropriate seating arrangement, a teacher should consider the method of instruction being used (cooperative learning, whole group discussion, etc.), the spatial design of the room, and amount and types of interaction desired. Then, a teacher can decide upon the best arrangement and have the students quickly move their seats into the desired arrangement. By having students assist in arranging their desks, the length of time it would take the teacher to move the seats on his/her own is eliminated. However, for a more permanent arrangement, the teacher should continue to be responsible for the placement of the seats in order to place the students in the most appropriate location. With this information in mind, teachers will become aware that the goal of increased on-task behavior will soon result in more learning time for all students.

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APPENDIX A

BEHAVIOR CHECKLIST

STUDENT BEHAVIOR CHECKLIST

	A	B	C	D	E
1	Student Name	Inappropriate Talking	Fidgeting	Not Begin Task Prompt	Not Follow Directions
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

APPENDIX B

TEACHER SURVEY

Classroom Seating Arrangements 2

by
Michelle Bonus
Linda Riordan

Teachers: In order to further our research on classroom seating arrangements it would be very helpful if you would take a moment to fill out this short survey based upon your own classroom experience.

Please return it to me by _____. Thank you for your time.

Background Information

1. What grade do you teach? _____
2. How many years have you been teaching? _____
3. What is the number of students in your class? _____
4. What is the range of your students' ability? (circle one)

   extreme low to extreme high average

   mostly low mostly high

Questions

1. What is the current seating arrangement in your classroom?

---

2. Circle the type(s) of seating arrangements you most commonly use.

   rows groups of four or more

   pairs U-Shape

   triplets circle other _____

3. Which seating arrangement do you prefer the most?

Briefly explain why.

---

4. How often do you change your seating arrangement? (circle one)

once per quarter once per year 32

once per month other_____

Briefly explain your reasons for changing your arrangement.

---

5. Where do you usually seat high achievers?

---

6. Where do you usually seat low achievers?

7a. Do you seat your students in a heterogeneous order? (circle one)

sometimes always never

b. If you answered *sometimes* or *always*, please explain the circumstances in which you use this arrangement.

8a. Do you seat your students in a homogeneous order? (circle one)

sometimes always never

b. If you answered *sometimes* or *always*, please explain the circumstances in which you use this arrangement.

---

9. How often do you allow your students to choose their seats?

sometimes always never

10. In what arrangement do you notice low achievers being most attentive?

---

11. Is there some type of student desk or table you would prefer in order to create an environment that promotes more on-task behavior? Briefly explain.

Thank you for your cooperation. Please return this to

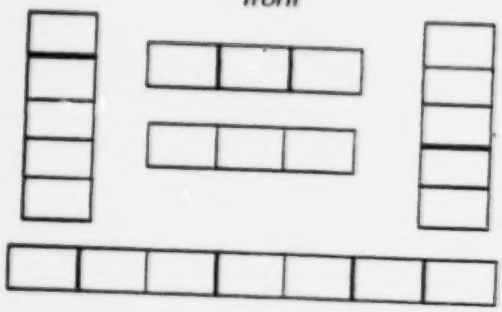
_____ by _____

APPENDIX C

SEATING ARRANGEMENTS

U-shape

Site A



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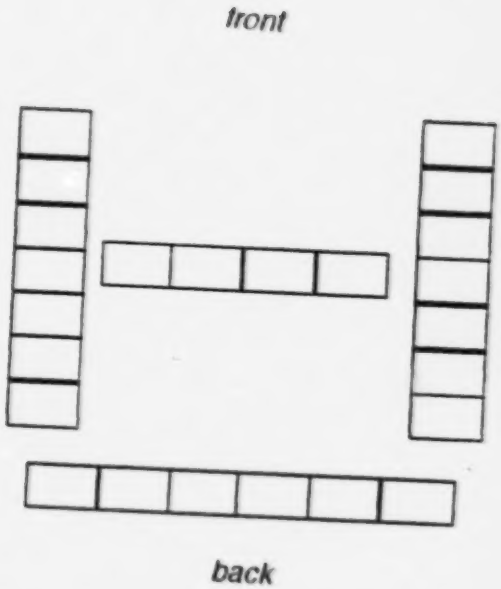
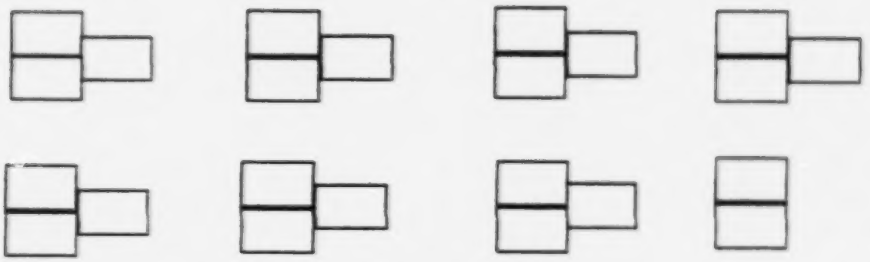


Clusters

Site A

front



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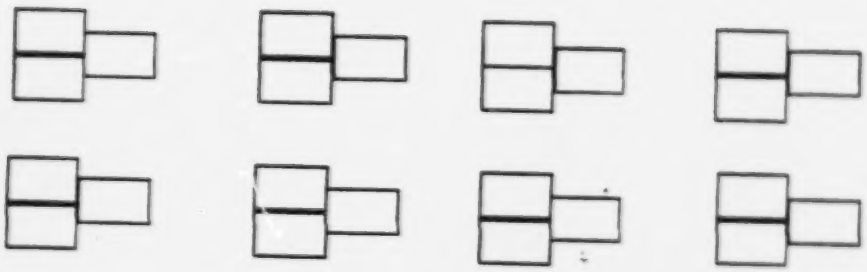
Site B

front



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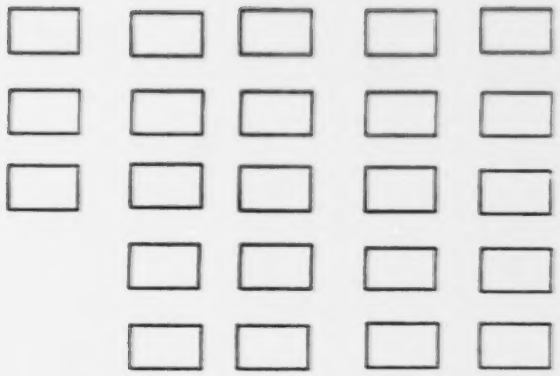
Rows

Site A

front



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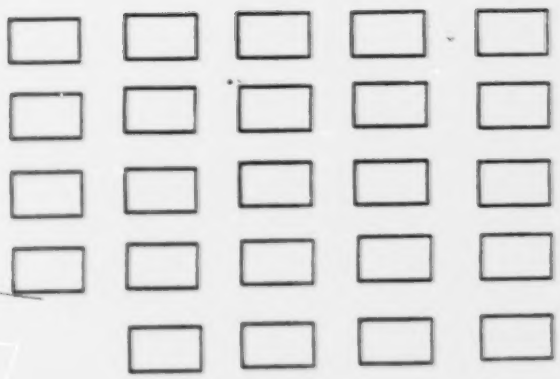

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